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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RIBAR, TRAVIS B

ART UNIT

PAPER NUMBER

1711

9

DATE MAILED: 12/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/811,024

Applicant(s)

EGGERS ET AL.

Examiner

Travis B Ribar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-15 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

1. The amendment filed October 28, 2002 overcomes all rejections made under 35 USC 112 in the prior office action.
2. All rejections made under 35 USC 103 in the prior office action are maintained and are repeated below for the applicant's convenience.

Election/Restrictions

3. Applicant's election with traverse of claims 1-11 and 13-15 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that a search for the method would necessarily include a search for the product. This is not found persuasive because not only could the process be used to make another and materially different product, such as a non-thermoformable film, but also because the product as claimed could be made by another and materially different process as disclosed in the prior office action.

The requirement is still deemed proper and is therefore made FINAL.

4. This application contains claim 12 drawn to an invention nonelected with traverse in Paper No. 8. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.
5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4, 11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being anticipated by Khanna et al. in view of Mizutani et al.

Khanna et al. discloses a polyamide polymer (column 7, lines 14-33) that is used as a single or multi-layer film (column 11, lines 42-59). The polyamide polymer includes a small amount (column 9, lines 9-16) of silica nucleating agent (column 8, line 67). It is envisioned that the polyamide layer comprises polyamide 6, meeting that part of claim 1.

The amount of nucleating agent falls in the range specified by the applicant in claim 1 and it is well known that a nucleating agent is used so that polymer crystals form from the surface of the nucleating agent upon cooling of the polymer. The nucleated polyamide films may be made into articles or used in the packaging of foodstuffs (column 11, lines 41-59, meeting claims 15 and 14, respectively).

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Khanna et al. does not, however, disclose the cooling rate that the applicant specifies in newly cancelled claim 2, that the nucleating agents have high aspect ratios (claim 1), or the distance between spherulites in claims 1 and 4. These aspects of the invention are found in Mizutani et al.

Mizutani et al. discloses that layered silica, montmorillonite, which has the aspect ratio that the applicant claims in claim 1, is a suitable nucleating agent for creating crystals in polymers, particularly in the amount specified in claim 1 (column 12, lines 49). It is well known in the art that in order to nucleate a polymer one must cool it from above its melting temperature to below its glass transition temperature. Mizutani et al. also discloses that the cooling rate the applicant cites in newly cancelled claim 2 is known in the art to form crystals in a polymer (column 17, lines 22-23).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use montmorillonite as the nucleating agent and 10°C per minute as the cooling rate in the invention shown in Khanna et al. It further would have been obvious to produce a thin flat film using the composition shown in Khanna et al. The motivation for doing so would be to create a suitably crystallized polymer that would be useful in food packaging applications. Therefore it would have been obvious to combine Mizutani et al. with Khanna et al. to obtain the invention as specified in claims 1, 4, 10, and 12-16.

The distance between spherulites, appearing in claims 1 and 4 of the present invention, are properties inherent to a given material. As such, any material that fulfills the applicant's material claims fits these property claims as well. The composition

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taught by the combination of Khanna et al. and Mizutani et al., when cooled at the rate shown above, (which is the same rate the applicant claims) would inherently possess spherulites that are the same distance from each other as the distance that the applicant claims. Therefore, Khanna et al. in view of Mizutani et al. meets the material claims set forth by the applicant, as shown above, and anticipates these aspects of claims 1 and 4.

Finally, claim 11 is a product-by-process claim. In product-by-process claims, "once a product appearing to be substantially identical is found and a 35 U.S.C. 103 rejection made, the burden shifts to the applicant to show an unobvious difference." MPEP 2113. In the present application, the nucleated film formed by the combined knowledge in Khanna et al. and Mizutani et al. appears to form the same thermoformable film that the applicant claims. The applicant has not shown that the method by which the product is made causes the product to be patentably distinct from the product produced by the reference(s). This rejection under 35 U.S.C. 103 is therefore proper because the "patentability of a product does not depend on its method of production." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

8. Claims 5, 7-10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramesh in view of the combined teachings of Khanna et al. and Mizutani et al.

Ramesh discloses a multilayer film structure useful for the packaging of foodstuffs (column 19, lines 22-31, meeting claims 14 and 15) that includes multiple

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layers of polyamide and ethylene-vinyl alcohol (column 2, lines 38-53, meeting this part of claims 5 and 9). In the multilayer film, the outer layer is polyamide (column 3, lines 23-25 and column 15, line 47) and there may be a tie layer between the layers in order to improve adhesion between them (column 3, lines 33-38). In this respect, Ramesh meets these parts of claims 5 and 7. The film may include a heat-sealing layer on one outer surface of the film (column 19, line 3 and column 14, lines 54-55). In embodiments where the multilayer film includes a tie layer and other polymer layers (such as example 3 in the reference), it meets the restrictions of claims 8 and 10. The multilayer film is used on a form/fill/seal machine (column 19, lines 22-31, meeting claim 13).

Ramesh does not, however, teach the inclusion of nucleating agents in the polyamide layer, the aspect ratio of the nucleating agent, or the distance between the spherulites in the nucleated film. All of those aspects are taught through the combination of Khanna et al. and Mizutani et al., which are discussed above. Those references teach the use of a small amount of small nucleating agent and a specific cooling rate in order to create a film with improved crystalline, and therefore mechanical, properties. Therefore the substitution of the tougher polyamide film taught by the combination of Khanna et al. and Mizutani et al. for the outer polyamide layer in the multilayer film in Ramesh would be obvious to one skilled in the art.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the polyamide film taught by the combination of Khanna et al. and Mizutani et al. as the outer layer in the multilayer film shown in Ramesh. The motivation

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for doing so would be to provide a multilayer film with improved mechanical properties. Therefore it would have been obvious to combine Khanna et al. and Mizutani et al. with Ramesh to obtain the invention as specified in claims 5, 7-10, and 13-15.

9. Claims 7-8, 10, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frisk in view of the combined teachings of Khanna et al. and Mizutani et al.

Frisk discloses a multilayer polyamide film (column 2, line 51) used in food packaging (column 5, lines 46-49, meeting that aspect of claims 14 and 15) that includes a metal oxide layer as specified in claim 10 (column 1, lines 64-66). The exterior of the multilayer film is a polyamide (column 2, lines 41-57), reflecting claim 7 of the current application, and heat-sealing adhesive layers (column 4, lines 40-46) are also present in the multilayer film, meeting claim 8.

Frisk does not, however, teach the inclusion of nucleating agents in the polyamide layer, the aspect ratio of the nucleating agent, or the distance between the spherulites in the nucleated film. All of those aspects are taught through the combination of Khanna et al. and Mizutani et al., which are discussed above. Those references teach the use of a small amount of small nucleating agent and a specific cooling rate in order to create a film with improved crystalline, and therefore mechanical, properties. Therefore the substitution of the tougher polyamide film taught by the combination of Khanna et al. and Mizutani et al. for the outer polyamide layer in the multilayer film in Frisk would be obvious to one skilled in the art.

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At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the polyamide film taught by the combination of Khanna et al. and Mizutani et al. as the outer layer in the multilayer film shown in Frisk. The motivation for doing so would be to provide a multilayer film with improved mechanical properties. Therefore it would have been obvious to combine Khanna et al. and Mizutani et al. with Frisk to obtain the invention as specified in claims 7-8, 10, and 14-15.

10. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al. in view of the combined teachings of Khanna et al. and Mizutani et al.

Harada et al. discloses a multilayer film that includes a layer of polyamide made from epsilon-caprolactam (column 3, lines 1-22). The amount of epsilon-caprolactam present in the polyamide includes the range the applicant claims in claim 6. The multilayer film also includes a layer of polyolefin (column 5, lines 38-63), meeting that aspect of claim 10.

Harada et al. does not, however, teach the inclusion of nucleating agents in the polyamide layer (though their use is implied in column 3, line 27), the aspect ratio of the nucleating agent, or the distance between the spherulites in the nucleated film. All of those aspects are taught through the combination of Khanna et al. and Mizutani et al., which are discussed above. Those references teach the use of a small amount of small nucleating agent and a specific cooling rate in order to create a film with improved crystalline, and therefore mechanical, properties. Therefore the substitution of the tougher polyamide film taught by the combination of Khanna et al. and Mizutani et al. for

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the outer polyamide layer in the multilayer film in Harada et al. would be obvious to one skilled in the art.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the polyamide film taught by the combination of Khanna et al. and Mizutani et al. as the outer layer in the multilayer film shown in Harada et al. The motivation for doing so would be to provide a multilayer film with improved mechanical properties. Therefore it would have been obvious to combine Khanna et al. and Mizutani et al. with Harada et al. to obtain the invention as specified in claims 6 and 10.

Response to Arguments

11. Applicant's arguments filed October 28, 2002 have been fully considered but they are not persuasive.

12. The applicant argues the applicability of Mizutani et al. to the current application, stating that Mizutani et al. does not pertain to polyamides, that it does not include the nucleating agent the applicant claims, and that it does not contain the nucleating agent in the amount the applicant claims. The examiner respectfully disagrees with this characterization of the reference.

Mizutani et al. was used to provide evidence that the nucleating agent the applicant uses is known in the art. As such, the reference shows the same nucleating agent (column 12, line 48) the applicant uses in their examples in their specification in the same amount that the applicant claims (column 12, line 54), indicating that the

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inherent physical properties of the nucleating agent are known to provide for good nucleating agents. While it is true that Mizutani et al. does not expressly state a reason for choosing one nucleating agent over another, it still envisions the use of the nucleating agents the applicant claims. Regarding the applicability of the nucleating agent in the reference to a polyamide system rather than a polyimide system, the examiner notes that one would reasonably expect a nucleating agent in a polyamide to behave similarly to a nucleating agent in a polyimide and therefore the teachings of Mizutani et al. in that respect are analogous to the present application. The motivation for adding the nucleating agent is the same as discussed above.

13. The applicant also argues the application of Khanna et al. The relevance of Khanna et al. to claim 2 in the current application is moot due to the applicant's cancellation of the claim, but it will be discussed here nonetheless. The applicant states that the reference does not teach the production of a product using the cooling rate the applicant claims, rather that it only shows that a testing method utilizes such a cooling rate. The examiner maintains this part of the rejection because the experiment in which Khanna et al. uses the cooling rate in question (DSC) is used for the purpose of finding crystallization temperatures by crystallizing a polymer. Therefore, the reference shows that such a temperature is known to cause crystallization in a polymer melt such as the one the applicant claims and therefore anticipates the claim.

The applicant also argues that Khanna et al. does not necessarily contain a nucleating agent. The examiner agrees, but Khanna et al. clearly teaches the use of

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nucleating agents (discussed in the rejections above), so this part of the claims is still encompassed by the reference.

14. The applicant's arguments regarding the application of the other references in this case all stem from the above arguments against Mizutani et al. and Khanna et al. and have therefore already been addressed.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis B Ribar whose telephone number is (703) 305-3140. The examiner can normally be reached on 8:30-5:00 Monday through Friday.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Travis B Ribar
Examiner
Art Unit 1711

TBR
December 9, 2002



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700